

hardly reaching median ocellus. Circum-, inter- and post ocellar furrows clear. Lateral furrows excurved and sunken. Postocellar area flat, broader than long in ratio 2:1 with deep median longitudinal furrow. Head parallel behind eyes. Mesoscutellum hardly raised. Appendage with sharp carina. Seams of mesonotum broad and sunken. Subapical tooth of claw stronger and slightly longer than apical one. Metabasitarsus shorter than following tarsal joints combined.

Head appearing wrinkled due to large, shallow and confluent punctures, hind orbit minutely and densely punctured. Mesonotum minutely punctured with strong microsculpture at apex of middle lobe. Mesoscutellum with distinct punctures on posterior slope. Appendage polished. Mesepisternum strongly wrinkled. Mesosternum minutely and densely punctured. Appendage of metepisternum polished. Abdomen microstriated, propodeum more strongly so. Lancet as in Fig. 2.

Material examined: 3 females, Arunachal Pradesh, Bomdila, 2700 m, 1 May 1989.

KEY TO THE KNOWN SPECIES OF *Laurentina* MALAISE

1. Hind wing with one closed middle cell in female. Mesonotum shining with scattered minute punctures. Seams of mesonotum broad and sunken. Lancet as in Fig. 2 *L. birmanica* Malaise
Hind-wing with two closed middle cells in female. Mesonotum densely punctured or microsculptured. Seams of mesonotum fine and not sunken 2
2. General colour reddish with few black markings. Head dilated behind eyes in female ... *L. ruficornis* Malaise
— General colour black with few reddish markings. Head narrowing behind eyes 3
3. Tergum 4 pale yellow. Postocellar area subconvex. Subapical tooth of claw longer than apical one *L. uncinata* Malaise
— Abdomen entirely black. Postocellar area flat. Subapical tooth of claw shorter than apical one. Lancet as in Fig. 1 *L. sarchuckensis* sp. nov.

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OSTEOBRAMA BHIMENSIS, A NEW CYPRINID FISH FROM BHIMA RIVER, PUNE DISTRICT, MAHARASHTRA¹

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(With two text-figures)

A few specimens of the Indo-Burmese genus *Osteobrama* Heckel were collected from the reservoir at Ujani on the river Bhima about 98 km from Pune. These proved on examination and detailed comparison with the related species, *Osteobrama cotio* (Ham.), to be a new species which is described here.

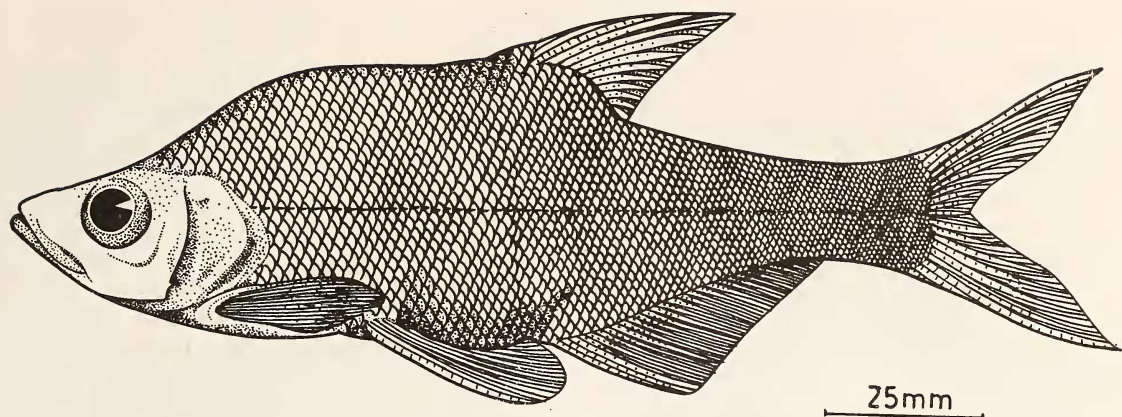
Day (1939) recorded seven species under the genus *Rohitee* from the Indian subcontinent, namely

R. bakeri Day, *R. neilli*, *R. cotio* (Ham.), *R. vigorsii* Sykes, *R. belangeri* (Cuv. & Val.), *R. ogilbii* Sykes and *R. cunma* (Tickell). Of these, only *R. ogilbii* is now retained under *Rohitee* whereas the rest are now assigned to *Osteobrama*. Among them, *O. cotio*, a widely distributed species is known by two subspecies viz., *O. cotio cotio* (Ham.) from north India and Assam and *O. cotio cunma* (Day) from Burma and Pune (Jayaram 1981).

Bhima, the major river of Pune district, is an important tributary of the Krishna river system. A dam constructed on the river at Ujani has given rise

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Fig. 1. *Osteobrama bhimensis* sp. nov.

to a large reservoir which is now declared as a "wetland of national importance". Faunistic surveys of this wetland are being undertaken regularly by the Zoological Survey of India, Western Regional Station, Pune for studying the faunal composition in relation to ecological parameters.

***Osteobrama bhimensis* sp. nov.**

Description (Fig 1) : D iii-iv 9, P i/15; V i/9, A iii/23-25, C 19, LL 76-83.

Body short, deep and compressed. Abdominal edge keeled only between pelvic and anal fins. Dorsal profile arched just over the nape. Head length 3.68 (3.4-3.9), body depth 3.28 (3.0-4.1) in standard length respectively.

Snout 3.28 (3.0-3.8), eye 3.25 (2.5-3.8) and interorbital width 3.88 (3.6-4.2) in head length. Eye 1.06 (0.83-1.2) in snout length and 1.01 (0.83-1.3) in interorbital width. Eyes large and just visible from below the ventral surface of head. Upper jaw slightly longer than the lower. Lips thin and plain. Barbels absent. Rayed dorsal fin inserted nearer caudal base than tip of snout. The ventral fin extends beyond anal opening. Predorsal length 1.73 (1.7-1.8) while postdorsal length 2.0 (2.0-2.1). Dorsal fin with a strong serrated spine. Caudal fin deeply forked. Scales well formed. Lateral line with 79 scales (76-83). 13-17 scales between pelvic fin base and LL and 28 (24-32) predorsal scales.

Uniform silvery colour with dark along the

TABLE 1
MORPHOMETRIC MEASUREMENTS OF *O. bhimensis* SP. NOV.

| Proportions | Range | Mean | Range (in %) | Mean (in %) |
|--|-------------|------|---------------|-------------|
| Total length (TL)/Standard length (SL) | 1.22 - 1.29 | 1.25 | 77.20 - 81.81 | 79.56 |
| SL/head length | 3.4 - 3.9 | 3.68 | 25.14 - 29.16 | 27.0 |
| SL/body depth | 3.0 - 4.1 | 3.28 | 24.30 - 32.85 | 30.5 |
| SL/predorsal length | 1.7 - 1.8 | 1.73 | 55.55 - 59.31 | 57.5 |
| SL/postdorsal length | 2.0 - 2.1 | 2.0 | 44.44 - 50.47 | 48.3 |
| Body depth/head length | 1.13 - 1.23 | 1.19 | 80.76 - 87.80 | 83.7 |
| Head length/snout length | 3.0 - 3.8 | 3.28 | 26.31 - 33.33 | 30.7 |
| Head length/eye diameter | 2.5 - 3.8 | 3.25 | 26.19 - 31.57 | 29.0 |
| Head length/inter orbital width | 3.6 - 4.2 | 3.88 | 20.28 - 27.77 | 24.9 |
| Snout/eye diameter | 0.83 - 1.2 | 1.06 | 83.33 - 120 | 95.4 |
| IOW/eye diameter | 0.83 - 1.3 | 1.01 | 76.92 - 120 | 100.8 |
| Preanal length/SL | 1.6 - 1.7 | 1.63 | 58.8 - 62.06 | 60.3 |

back. Further data is presented in Table 1.

Distribution: River Bhima, Pune district, Maharashtra.

Type specimens: Holotype — River Bhima, Saha village, Indapur taluka, Pune district, Maharashtra. 6 Sept. 1989, 135 mm SL. Coll. D.F. Singh. Reg. No. P/1235.

Paratypes — 5 exs. 137-210 mm SL. Reg. No. P/1236 with same details as above.

The type material will later on be deposited in the National Zoological Collection at Calcutta. Presently it is kept in the Western Regional Station of ZSI, Pune.

Hora and Misra (1940) in their revisionary work on fishes under the genus *Rohtee* (= *Osteobrama*) recorded the occurrence of *Osteobrama cotio* (Ham.) from north India and Assam and its variety [*O. c. cunma* (Day)] from Burma and Pune. Jayaram (1981) however, recognised two subspecies *O. cotio cotio* and *O. cotio cunma*. However, no specimen of the subspecies *cunma* has been obtained by us anywhere in Pune district.

While comparing the morphometric and meristic characters of the new species with the two

known subspecies, it was seen that there is a clear difference in the number of lateral line scales, lateral transverse, branched rays in the anal fin, predorsal scales, among other characters. The differences have been shown in Table 2. This new species shows a striking resemblance to *O. vigorsii* which also occurs in Bhima river, but differs in the following characters: absence of barbels, number of transverse scales, etc. (Table 2).

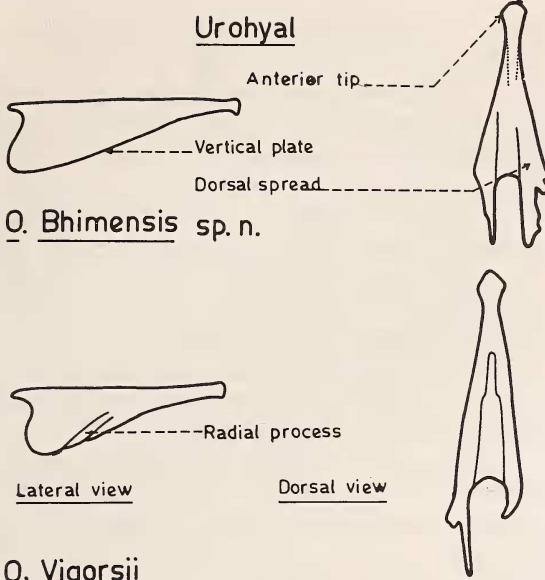
To further confirm our findings, the urohyal bones of *O. bhimensis* and *O. vigorsii* were studied. This bone, which lies in the lower part of the head between the lower jaw bones, has proved to be of exceptional significance in fish systematics.

The urohyal in both species is long and slender. In *O. bhimensis* the dorsal spread is long with its posterior right side thickened while its left side is slender and tapering (Fig. 2). In *O. vigorsii*, the dorsal spread ends posteriorly in two unequal wings, the left side being longer and thickened. The vertical plate too shows structural variations in the two species. *O. vigorsii* has a radial process on its vertical plate which is lacking in *O. bhimensis*.

TABLE 2
MORPHOMETRIC AND MERISTIC CHARACTERS OF *O. bhimensis* SP. NOV., *O. c. cunma*, *O. c. cotio* AND *O. vigorsii*

| Characters | <i>O. bhimensis</i> | | <i>O. c. cunma</i> * | | <i>O. c. cotio</i> * | | <i>O. vigorsii</i> * | |
|----------------------------------|---------------------|---------|----------------------|---------|----------------------|---------|------------------------------------|---------|
| | Range | Average | Range | Average | Range | Average | Range | Average |
| Standard length/ head length | 25.14 - 29.16 | 27.4 | 21.83 - 27.38 | 24.35 | 22.72 - 28.57 | 24.71 | 25 - 28.78 | 27.4 |
| Standard length/ body depth | 24.30 - 32.85 | 30.52 | 33.33 - 48.92 | 41.74 | 37.14 - 48.30 | 42.07 | 34.16 - 39.13 | 35.98 |
| Body depth/ head length | 80.76 - 87.80 | 83.72 | 47.36 - 80 | 58.83 | 49.56 - 66.66 | 58.99 | 69.44 - 80.43 | 75.22 |
| Head length/ snout length | 26.31 - 33.33 | 30.70 | 23.07 - 31.81 | 28.31 | 21.62 - 30.00 | 26.43 | 23.78 - 30 | 27.94 |
| Head length/ eye diameter | 26.19 - 31.57 | 29.04 | 35.61 - 47.77 | 39.97 | 36.66 - 45.00 | 42.05 | 26.66 - 35.5 | 31.52 |
| Head length/ interorbital width | 20.28 - 27.77 | 24.99 | 21.05 - 31.61 | 27.18 | 22.63 - 32.00 | 27.54 | 16.66 - 22.4 | 19.49 |
| Lateral line scales | 76 - 83 | 79 | 42 - 60 | 49 | 58 - 70 | 62 | 73 - 85 | 78 |
| Scales between LL and Pelvic fin | 13 - 17 | 14 | 7.5-9.5 | 8 | 10.5-13 | 11 | 11 - 11.5 | 11 |
| Predorsal scales | 24 - 32 | 28 | 18 - 24 | 21 | 24 - 29 | 26 | 33 - 37 | 34 |
| Anal fin | 3/23-25 | 3/24 | 3/25-31 | 3/28 | 3/28-33 | 3/30 | 3/21-27 | 3/23 |
| Barbels | | Absent | | Absent | | Absent | Two rudimentary maxillary barbels. | |

* Measurements calculated from Hora & Misra (1940). All ratios are expressed as percentages.



- edge keeled throughout *O. belangeri*
- Anal fin with more than 20 branched rays. Abdominal edge keeled only between pelvic and anal fins 3
- 3. L.L. 42 - 60, scales between L.L. and pelvic fin 7-9.5, anal fin with 25 - 31 branched rays *O. cotio cunma*
- L.L. 58-70, scales between LL and pelvic fin 10.5-13. Anal fin with 28-33 branched rays *O. cotio cotio*
- L.L. 76-83, scales between L.L. and pelvic fin 13-17, anal fin with 23-25 branched rays *O. bhimensis* sp. nov.
- 4. Four well defined barbels 5
- Two rudimentary maxillary barbels only 7
- 5. Anal fin with more than 20 branched rays. L.L. scales more than 60 *O. feae*
- Anal fin with less than 20 rays. L.L. scales less than 60 6
- 6. L.L. scales 59, 17 branched rays in anal fin *O. neilli*
- L.L. scales 44, 11 branched rays in anal fin *O. bakeri*
- 7. L.L. scales 73-85. Anal fin with 21-27 branched rays *O. vigorsii*
- L.L. scales 86-70. Anal fin with 16-18 branched rays *O. dayi*

Fig. 2. Urohyal in *O. bhimensis* and *O. vigorsii*.

KEY TO THE SPECIES (MODIFIED) FROM HORA & MISRA (1940)

- 1. Barbels absent 2
- Barbels present 4
- 2. Anal fin with less than 20 branched rays. Abdominal

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FIRST REPORT OF THE FAMILY VAEJOVIDAE (SCORPIONIDAE : ARACHNIDA) IN MADHYA PRADESH, WITH THE DESCRIPTION OF A NEW SPECIES *SCORPIOPS (SCORPIOPS) PACHMARHICUS*¹

DESHABHUSHAN BASTAWADE²
(With eight text-figures)

Scorpions of the family Vaejovidae are known from 23 nominal species from Indian

subcontinent (Tikader and Bastawade 1976, 1983). All known species have been described under the genus *Scorpiops* Peters 1861 by splitting up this genus into three sub-genera, namely *Scorpiops* Peters (typical), *Euscorpiops* Vachon

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